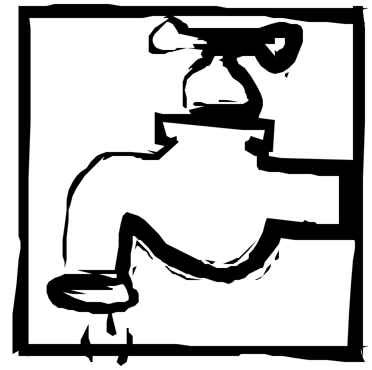
Clark County Health Department

DRINKING WATER NEWS

W A T E R L I N E S



SMALL WATER SYSTEMS– 2002

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As many of you know, the Health District has been conducting sanitary survey inspections of public water systems during this past year. In implementing this project, the Department of Health's primary focus was to identify small public water systems operating under high-risk conditions. For 2002, we have not found any systems warranting formal compliance action. Generally, the water systems that have been evaluated have received high marks, and the users report a high level of satisfaction with their drinking water supply.

In contrast, there were situations where the operation of the water system had been on autopilot for so long that the present residents, those reliant on the drinking water supply, had only a vague knowledge of its existence. In talking to novice water system operators, it was not uncommon that responsibility was assumed without so much as orientation tours, service receipts or a system sketch. For these operators, the sanitary survey has been an opportunity to discuss equipment, maintenance, and compliance issues unique to their system.

Here are some common problems that the survey reports have identified, and why those problems can matter:

☑ *Improperly secured well caps*– examples: loose, unfastened, or non-fitting well caps, holes stuffed with cork/rags/wood doweling.

To exclude contaminants from entering the well interior, the well cap has to fit correctly and be the correct type. Openings intended for affixing conduit or pipe must be closed appropriately.

☑ *Improperly sealed well caps*– examples: broken caps, ragged casing openings, missing bolts/vent tubes/plugs, broken electrical conduit or openings where wiring passes through well cap, openings for pump security rope.

Openings, cracks and missing parts in a sanitary well cap defeat its main purpose. That purpose is to seal the top of the well bore. Pitless-adapter style caps are designed to be weather resistant, whereas standard plate-style well caps usually <u>are not</u> intended for applications lacking protection from the elements. Wellheads with standard caps should always be sheltered from sun, rain and burial to protect the internal rubber seal. Pitless equipped wells can stand in the open without sacrificing sealing qualities.

☑ *Missing or improper casing vents*– examples: vent hole sealed closed, vent missing, non-vented caps, vent with large unscreened opening(s).

☑ *The water level in a well bore typically drops or rises in response to pumping draw down, pump-off recovery, and water table elevation changes. The resultant change in air volume within the well casing can create a temporary high or low air pressure. A well cap vent tube is necessary to allow the well to "breathe." Lacking a vent tube can result in negative well pressure drawing contaminating matter, or liquids past he cap seal. A simple elevated and screened tube provides a way to vent the well casing while minimizing the potential for contaminants to enter. A superior vent is attached at the cap, and looks like an inverted letter "J." The down-turned open end always has a fine mesh wire screen. Pitless adapter equipped wells are also intended to have caps with vents. The vents can be small built-in screened openings located on the cap underside, or a weatherproof device affixed to the top of the cap.*

☑ *Fittings constantly leaking on and around the well cap*– examples: pressure relief valves, "snifter" fittings, worn out pump packing, pressure tank leaks.

Leaking fittings degrade system performance and the water quality. Moisture from leaks accelerates hardware corrosion, and may draw rodents and insects to the wellhead. Leaking components should always be placed with the correct replacement part. Water system performance and safety depend on it.

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- ☑ *Treatment devices improperly installed or inadequately maintained*– examples: chlorine injectors on the discharge side of contact tanks, filters installed after UV systems, or UV before media-type treatment devices.

  Individuals thoroughly familiar with the performance criteria of both the device, and the water system should only attempt installation of water quality treatment equipment. A comprehensive laboratory analysis of the water should be performed prior to selecting a treatment process. Failure to install equipment correctly will impair treatment performance, and may lead to a false sense of security. A confirmation water analysis by a certified laboratory is highly recommended to make adjustments, and set a performance baseline.. Note: written approval by the DOH Regional Engineer is required for any large water system installing water treatment devices beyond simple chlorination.

- ☑ *Water distribution system cross-connections*– examples: hoses without backflow devices left in hot tubs, pools, and watering troughs, permanent and temporary connections to unauthorized water sources, irrigation systems lacking backflow devices.

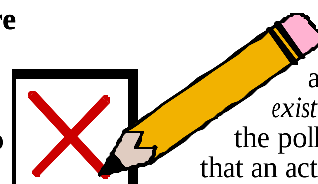
  Cross-connections put the system users at risk. All parties on a water system need to be familiar with cross-connection prevention. Ideally, the appropriate backflow device should be in place wherever the potential for cross-connection occurs.

- ☑ *Encumbered sanitary control area (SCA)*– examples: storm water disposal drywells, unauthorized septic system repairs, solid waste stockpiles, animal corrals, and buildings containing fuels, solvents, pesticides/ herbicides located within 100 feet of the well.

  The standard SCA can be thought of as a circle with a radius of 100 feet, the well in the center. Individual sites may have characteristics that support an increase or decrease in the size of the SCA to accomplish adequate protection for the well. The activities in the example represent just a few contamination sources that can degrade groundwater. Over time, the standards and methods used in constructing wells have improved. Unencumbered SCA's are necessary to allow sufficient time for the moving groundwater to be contaminant-free before it reaches the well.

A Correction

The April 2002 issue of the *Water Lines* feature "Joe's Q & A" contained an error.



The subject of that discussion focused on practical ways to lower the height of an existing wellhead so that it could be safely enclosed in an at-grade protective vault. The proposal in the example was to lower the wellhead to allow a driveway to be built over the well area.

The correct answer to that proposal is quite different from the conclusions in that discussion. The error would have been apparent had the latest edition of the regulations been consulted.

- ☑ According to *Minimum Standards for the Construction and Maintenance of Wells*, Chapter 173-160-291 Washington Administrative Code, terminating a well below grade is prohibited. All well casings must extend a minimum of 6 inches above the ground. *This provision can apply to existing wells.* The Department of Ecology, and the pollution control hearings board, has ruled that an act of physically modifying a wellhead is an alteration requiring the submission of a well report and is bound to the well construction rules in effect at the time of the alteration.

The correct answer: don't plan on locating any portion of a driveway near, or over a well. The well casing must remain at least 6 inches higher then the ground level where it could easily present a collision hazard close to, or in, a driveway. The wellhead cannot be lowered and placed in a vault for any reason. Persons seeking to deviate from the regulations must contact the Department of Ecology to obtain written approval to do so.

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Please note our new name and address!